Contents Volume 36:1 February 2013

McCullough, M. E., Kurzban, R. & Tabak, B. A. Cognitive systems for revenge and forgiveness 1

Open Peer Commentary:

Aureli, F. & Schaffner, C. M. Why so complex? Emotional mediation of revenge, forgiveness, and reconciliation 15

Balliet, D. & Pronk, T. M. Personality, self-control, and welfare-tradeoff ratios in revenge and forgiveness 16

Barclay, P. Pathways to abnormal revenge and forgiveness 17

Beckerman, S. The cultural shaping of revenge 18

Crisp, R. J. & Meleady, R. On the evolutionary origins of revenge and forgiveness: A converging systems hypothesis 19

Dellis, A. & Spurrett, D. An eye for an eye: Reciprocity and the calibration of redress 20

Fatfouta, R., Jacobs, A. & Merkl, A. Towards a multifaceted understanding of revenge and forgiveness 21

Gintis, H. An implausible model and evolutionary explanation of the revenge motive 21

Holbrook, C., Fessler, D. M. T. & Gervais, M. M. Revenge without redundancy: Functional outcomes do not require discrete adaptations for vengeance or forgiveness 22

Johnson-Freyd, S. & Freyd, J. J. Revenge and forgiveness or betrayal blindness? 23

Karremans, J. C. & van der Wal, R. C. It takes more to forgive: The role of executive control 25

Konečni, V. J. Revenge: Behavioral and emotional consequences 25

Konrath, S. & Cheung, I. The fuzzy reality of perceived harms 26

Leiser, D. & Joskowicz-Jabloner, L. On the differential mediating role of emotions in revenge and reconciliation 27

McCoy, M. G. & Shackelford, T. K. No such thing as genuine forgiveness? 28

O'Connor, K. & Adams, G. S. Affective antecedents of revenge 29

Pahlavan, F. Third parties belief in a just world and secondary victimization 30

Petersen, M. B. Adaptationism and intuitions about modern criminal justice 31

Pietraszewski, D. The elementary dynamics of intergroup conflict and revenge 32

Potegal, M. Revenge: An adaptive system for maximizing fitness, or a proximate calculation arising from personality and social-psychological processes? 33

Roberts, S. C. & Murray, J. Applying the revenge system to the criminal justice system and jury decision-making 34

Ross, D. Forgiveness is institutionally mediated, not an isolable modular output 35

Sell, A. N. Revenge can be more fully understood by making distinctions between anger and hatred 36

Stein, D. J., van Honk, J. & Ellis, G. Revenge and forgiveness in the New South Africa 37

Uhlmann, E. L. The logic of moral outrage 38

Wereha, T. J. & Racine, T. P. A systems view on revenge and forgiveness systems 39

Yu, R. Revenge, even though it is not your fault 40

Authors' Response:

McCullough, M. E., Kurzban, R. & Tabak, B. A. Putting revenge and forgiveness in an evolutionary context 41

Baumard, N., André, J.-B. & Sperber, D. A mutualistic approach to morality: The evolution of fairness by partner choice 59

Open Peer Commentary

Ainslie, G. Intertemporal bargaining predicts moral behavior, even in anonymous, one-shot economic games 78

Ainsworth, S. E. & Baumeister, R. F. Cooperation and fairness depend on self-regulation 79

Alvard, M. S. Partner selection, coordination games, and group selection 80

Atran, S. From mutualism to moral transcendence 81

Binmore, K. Modeling justice as a natural phenomenon 82

Bonnefon, J.-F., Girotto, V., Heimann, M. & Legrenzi, P. Can mutualistic morality predict how individuals deal with benefits they did not deserve? 83

Bshary, R. & Raihani, N. "Fair" outcomes without morality in cleaner wrasse mutualism 83

Cappelen, A. W. & Tungodden, B. Heterogeneity in fairness views: A challenge to the mutualistic approach? 84

Clark, M. S. & Boothby, E. A strange(r) analysis of morality: A consideration of relational context and the broader literature is needed 85

Cova, F., Deonna, J. & Sander, D. The emotional shape of our moral life: Anger-related emotions and mutualistic anthropology 86

DeScioli, P. Does market competition explain fairness? 87

Dunfield, K. A. & Kuhlmeier, V. A. Evidence for partner choice in toddlers: Considering the breadth of other-oriented behaviours 88

Fessler, D. M. T. & Holbrook, C. Baumard et al.'s moral markets lack market dynamics 89

Gill, M. J., Packer, D. J. & Van Bavel, J. More to morality than mutualism: Consistent contributors exist and they can inspire costly generosity in others 90

Gintis, H. Mutualism is only a part of human morality 91

Graham, J. Beyond economic games: A mutualistic approach to the rest of moral life 91

Guala, F. Bargaining power and the evolution of un-fair, non-mutualistic moral norms 92

Iran-Nejad, A. & Bordbar, F. The paradox of the missing function: How similar is moral mutualism to biofunctional understanding? 93

Kirkby, D., Hinzen, W. & Mikhail, J. Your theory of the evolution of morality depends upon your theory of morality 94

Machery, E. & Stich, S. You can't have it both ways: What is the relation between morality and fairness? 95

Rachlin, H., Locey, M. L. & Safin, V. Biological evolution and behavioral evolution: Two approaches to altruism 96

Ramlakhan, N. & Brook, A. Sense of fairness: Not by itself a moral sense and not a foundation of a lot of morality 96

Roberts, G. Competitive morality 97

Rochat, P. & Robbins, E. Ego function of morality and developing tensions that are "within" 98

Sachdeva, S., Iliev, R. & Medin, D. L. Non-mutualistic morality 99

Shaw, A. & Knobe, J. Not all mutualism is fair, and not all fairness is mutualistic 100

Tummolini, L., Scorolli, C. & Borghi, A. M. Disentangling the sense of ownership from the sense of fairness 101

Warneken, F. From partner choice to equity – and beyond? 102

Authors' Response

Baumard, N., André, J.-B. & Sperber, D. Partner choice, fairness, and the extension of morality 102

Contents Volume 36:2 April 2013

Bullot, N. J. & Reber, R. The artful mind meets art history: Toward a psycho-historical framework for the science of art appreciation 123

Open Peer Commentary:

Chatterjee, A. Neuroaesthetics: Range and restrictions 137

Davies, S. Artists' intentions and artwork meanings: Some complications 138

De Smedt, J. & De Cruz, H. The artistic design stance and the interpretation of Paleolithic art 139

Fitch, W. T. & Westphal-Fitch, G. Fechner revisited: Towards an inclusive approach to aesthetics 140

Freeman, N. H. & Allen, M. L. Educating the design stance: Issues of coherence and transgression 141

Gelman, S. A., Meyer, M. A. & Noles, N. S. History and essence in human cognition 142

Gibbs, R. W., Jr. Artistic understanding as embodied simulation 143

Gilmore, J. Normative and scientific approaches to the understanding and evaluation of art 144

Graham, D. J. Integrating holism and reductionism in the science of art perception 145

Hirstein, W. Memories of Art 146

Hogan, P. C. Art appreciation and aesthetic feeling as objects of explanation 147

Kozbelt, A. & Ostrofsky, J. Extending the psycho-historical framework to understand artistic production 148

Leder, H. Acknowledging the diversity of aesthetic experiences: Effects of style, meaning, and context 149

Levinson, J. Causal history, actual and apparent 150

Malafouris, L. Mindful art 151

McManus, C. "The anti-developmental, the anti-narrative, the anti-historical": Mondrian as a paradigmatic artist for empirical aesthetics 152

Newman, G. E. The duality of art: Body and soul 153

Parsons, G. & Carlson, A. Distinguishing intention and function in art appreciation 153

Rollins, M. Exposure, experience, and intention recognition: Take it from the bottom 154

Ross, S. Context, causality, and appreciation 155

Schellekens, E. A bridge too far: From basic exposure to understanding in artistic experience 156

Silvia, P. J. Aesthetic meanings and aesthetic emotions: How historical and intentional knowledge expand aesthetic experience 157

Takahashi, S. & Ejima, Y. Contextual information processing of brain in art appreciation 158

Thompson, W. F. & Antliff, M. Bridging two worlds that care about art: Psychological and historical approaches to art appreciation 159

Tullmann, K. Questioning the necessity of the aesthetic modes 160

Vartanian, O. & Kaufman, J. C. Psychological and neural responses to art embody viewer and artwork histories 161

Wilson, R. A. Extended artistic appreciation 162

Authors' Reponse:

Bullot, N. J. & Reber, R. A psycho-historical research program for the integrative science of art 163

Contents Volume 36:3 June 2013

Clark, A. Whatever next? Predictive brains, situated agents, and the future of cognitive science 181

Open Peer Commentary:

Anderson, M. L. & Chemero, T. The problem with brain GUTs: Conflation of different senses of "prediction" threatens metaphysical disaster 204

Block, N. & Siegel, S. Attention and perceptual adaptation 205

Bowman, H., Filetti, M., Wyble, B. & Olivers, C. Attention is more than prediction precision 206

Bridgeman, B. Applications of predictive control in neuroscience 208

Buckingham, G. & Goodale, M. A. When the predictive brain gets it really wrong 208

Dennett, D. C. Expecting ourselves to expect: The Bayesian brain as a projector 209

Egner, T. & Summerfield, C. Grounding predictive coding models in empirical neuroscience research 210

Farmer, T. A., Brown, M. & Tanenhaus, M. K. Prediction, explanation, and the role of generative models in language processing 211

Friston, K. Active inference and free energy 212

Froese, T. & Ikegami, T. The brain is not an isolated "black box," nor is its goal to become one 213

Gerrans, P. Unraveling the mind 214

Gowaty, P. A. & Hubbell, S. P. Bayesian animals sense ecological constraints to predict fitness and organize individually flexible reproductive decisions 215

Hirsh, J. B., Mar, R. A. & Peterson, J. B. Personal narratives as the highest level of cognitive integration 216

Holm, L. & Madison, G. Whenever next: Hierarchical timing of perception and action 217

Khalil, E. L. Two kinds of theory-laden cognitive processes: Distinguishing intransigence from dogmatism 218

König, P., Wilming, N., Kaspar, K., Nagel, S. K. & Onat, S. Predictions in the light of your own action repertoire as a general computational principle 219

Little, D. Y.-J. & Sommer, F. T. Maximal mutual information, not minimal entropy, for escaping the "Dark Room" 220

Muckli, L., Petro, L. S. & Smith, F. W. Backwards is the way forward: Feedback in the cortical hierarchy predicts the expected future 221

Paton, B., Skewes, J., Frith, C. & Hohwy, J. Skull-bound perception and precision optimization through culture 222

Phillips, W. A. Neuronal inference must be local, selective, and coordinated 222

Rasmussen, D. & Eliasmith, C. God, the devil, and the details: Fleshing out the predictive processing framework 223

Roepstorff, A. Interactively human: Sharing time, constructing materiality 224

Ross, D. Action-oriented predictive processing and the neuroeconomics of sub-cognitive reward 225

Schaefer, R. S., Overy, K. & Nelson, P. Affect and non-uniform characteristics of predictive processing in musical behaviour 226

Seth, A. K. & Critchley, H. D. Extending predictive processing to the body: Emotion as interoceptive inference 227

Shea, N. Perception versus action: The computations may be the same but the direction of fit differs 228

Silverstein, S. M. Schizophrenia-related phenomena that challenge prediction error as the basis of cognitive functioning 229

Sloman, A. What else can brains do? 230

Spratling, M. W. Distinguishing theory from implementation in predictive coding accounts of brain function 231

Trappenberg, T. & Hollensen, P. Sparse coding and challenges for Bayesian models of the brain 232

Authors' Response:

Clark, A. Are we predictive engines? Perils, prospects, and the puzzle of the porous perceiver 233

Pothos, E. M. & Busemeyer, J. R. Can quantum probability provide a new direction for cognitive modeling? 255

Open Peer Commentary:

Aerts, D., Broekaert, J., Gabora, L. & Sozzo, S. Quantum structure and human thought 274

Atmanspacher, H. At home in the quantum world 276

Baldo, M. V. C. Signal detection theory in Hilbert space 277

Banerjee, A. & Horwitz, B. Can quantum probability help analyze the behavior of functional brain networks? 278

Behme, C. Uncertainty about the value of quantum probability for cognitive modeling 279

Blutner, R. & beim Graben, P. The (virtual) conceptual necessity of quantum probabilities in cognitive psychology 280

de Castro, A. On the quantum principles of cognitive learning 281

Corr, P. J. Cold and hot cognition: Quantum probability theory and realistic psychological modeling 282

Dzhafarov, E. N. & Kujala, J. V. Beyond quantum probability: Another formalism shared by quantum physics and psychology 283

Franceschetti, D. R. & Gire, E. Quantum probability and cognitive modeling: Some cautions and a promising direction in modeling physics learning 284

Gelman, A. & Betancourt, M. Does quantum uncertainty have a place in everyday applied statistics? 285

Gonzalez, C. & Lebiere, C. Cognitive architectures combine formal and heuristic approaches 285

Grace, R. C. & Kemp, S. Quantum probability and comparative cognition 287

Hameroff, S. R. Quantum mathematical cognition requires quantum brain biology: The "Orch OR" theory 287

Hampton, J. A. Quantum probability and conceptual combination in conjunctions 290

Houston, A. I. & Wiesner, K. Is quantum probability rational? 291

Kaznatcheev, A. & Shultz, T. R. Limitations of the Dirac formalism as a descriptive framework for cognition 292

Khalil, E. L. Disentangling the order effect from the context effect: Analogies, homologies, and quantum probability 293

Kusev, P. & van Schaik, P. The cognitive economy: The probabilistic turn in psychology and human cognition 294

Lee, M. D. & Vanpaemel, W. Quantum models of cognition as Orwellian newspeak 295

Love, B. C. Grounding quantum probability in psychological mechanism 296

MacLennan, B. J. Cognition in Hilbert space 296

Marewski, J. N. & Hoffrage, U. Processes models, environmental analyses, and cognitive architectures: Quo vadis quantum probability theory? 297

Mender, D. The implicit possibility of dualism in quantum probabilistic cognitive modeling 298

Navarro, D. J. & Fuss, I. What are the mechanics of quantum cognition? 299

Newell, B. R., van Ravenzwaaij, D. & Donkin, C. A quantum of truth? Querying the alternative benchmark for human cognition 300

Noori, H. R. & Spanagel, R. Quantum modeling of common sense 302

Oaksford, M. Quantum probability, intuition, and human rationality 303

Pleskac, T. J., Kvam, P. D. & Yu, S. What's the predicted outcome? Explanatory and predictive properties of the quantum probability framework 303

Rakow, T. If quantum probability = classical probability + bounded cognition; is this good, bad, or unnecessary? 304

Ross, D. & Ladyman, J. Quantum probability, choice in large worlds, and the statistical structure of reality 305

Shanteau, J. & Weiss, D. J. Physics envy: Trying to fit a square peg into a round hole 306

Stewart, T. C. & Eliasmith, C. Realistic neurons can compute the operations needed by quantum probability theory and other vector symbolic architectures 307

Tentori, K. & Crupi, V. Why quantum probability does not explain the conjunction fallacy 308

Authors' Response:

Pothos, E. M. & Busemeyer, J. R. Quantum principles in psychology: The debate, the evidence, and the future 310

Contents Volume 36:4 August 2013

Pickering, M. J. & Garrod, S. An integrated theory of language production and comprehension 329

Open Peer Commentary:

Aitken, K. J. It ain't what you do (it's the way that you do it) 347

Alario, F.-X. & Hamamé, C. M. Evidence for, and predictions from, forward modeling in language production 348

Bowers, J. How do forward models work? And why would you want them? 349

Chang, F., Kidd, E. & Rowland, C. F. Prediction in processing is a by-product of language learning 350

de Ruiter, J. P. & Cummins, C. Forward modelling requires intention recognition and non-impoverished predictions 351

Dell, G. S. Cascading and feedback in interactive models of production: A reflection of forward modeling? 351

Dick, A. S. & Andric, M. The neurobiology of receptive-expressive language interdependence 352

Dove, G. Intermediate representations exclude embodiment 353

Echterhoff, G. The role of action in verbal communication and shared reality 354

Festman, J. The complexity-cost factor in bilingualism 355

Fowler, C. A. An ecological alternative to a "sad response": Public language use transcends the boundaries of the skin 356

Hartsuiker, R. J. Are forward models enough to explain self-monitoring? Insights from patients and eye movements 357

Hickok, G. Predictive coding? Yes, but from what source? 358

Howes, C., Healey, P.G.T., Eshghi, A. & Hough, J. "Well, that's one way": Interactivity in parsing and production 359

Jaeger, T. F. & Ferreira, V. Seeking predictions from a predictive framework 359

Johnson, M. A., Turk-Browne, N. B. & Goldberg, A. E. Prediction plays a key role in language development as well as processing 360

Kashima, Y., Bekkering, H. & Kashima, E. S. Communicative intentions can modulate the linguistic perception-action link 361

Kreysa, H. Preparing to be punched: Prediction may not always require inference of intentions 362

Krishnan, S. A developmental perspective on the integration of language production and comprehension 363

Laurent, R., Moulin-Frier, C., Bessière, P., Schwartz, J.-L. & Diard, J. Integrate, yes, but *what* and *how*? A computational approach of sensorimotor fusion in speech 364

Mani, N. & Huettig, F. Towards a complete multiple-mechanism account of predictive language processing 365

McCauley, S. M. & Christiansen, M. H. Toward a unified account of comprehension and production in language development 366

Meyer, A. S. & Hagoort, P. What does it mean to predict one's own utterances? 367

Mylopoulos, M. I. & Pereplyotchik, D. Is there any evidence for forward modeling in language production? 368

Oppenheim, G. M. Inner speech as a forward model? 369

Pazzaglia, M. Does what you hear predict what you will do and say? 370

Pezzulo, G. & Dindo, H. Intentional strategies that make co-actors more predictable: The case of signaling 371

Rabagliati, H. & Bemis, D. K. Prediction is no panacea: The key to language is in the unexpected 372

Slevc, L. R. & Novick, J. M. Memory and cognitive control in an integrated theory of language processing 373

Strijkers, K., Runnqvist, E., Costa, A. & Holcomb, P. The poor helping the rich: How can incomplete representations monitor complete ones? 374

Trude, A. M. When to simulate and when to associate? Accounting for inter-talker variability in the speech signal 375

Yoon, S. O. & Brown-Schmidt, S. What is the context of prediction? 376

Authors' Response:

Pickering, M. J. & Garrod, S. Forward models and their implications for production, comprehension, and dialogue 377

Schilbach, L., Timmermans, B., Reddy, V., Costall, A., Bente, G., Schlicht, T. & Vogeley, K. Toward a second-person neuroscience 393

Open Peer Commentary:

Chakrabarti, B. Parameterising ecological validity and integrating individual differences within second-person neuroscience 414

Cummins, F. Social cognition is not a special case, and the dark matter is more extensive than recognized 415

Cleret de Langavant, L., Jacquemot, C., Bachoud-Lévi, A.-C. & Dupoux, E. The second person in "I"-"you"-"it" triadic interactions 416

Dezecache, G., Conty, L. & Grèzes, J. Social affordances: Is the mirror neuron system involved? 417

Dominey, P. F. Reciprocity between second-person neuroscience and cognitive robotics 418

Evans, N. On projecting grammatical persons into social neurocognition: A view from linguistics 419

Froese, T., Iizuka, H. & Ikegami, T. From synthetic modeling of social interaction to dynamic theories of brain-body-environment-body-brain systems 420

Gallagher, S., Hutto, D. D., Slaby, J. & Cole, J. The brain as part of an enactive system 421

Gallotti, M. Why not the first-person plural in social cognition? 422

Gambi, C. & Pickering, M. J. Talking to each other and talking together: Joint language tasks and degrees of interactivity 423

Gariépy, J.-F., Chang, S. W. C. & Platt, M. L. Brain games: Toward a neuroecology of social behavior 424

Hamilton, A. F. de C. Second person neuroscience needs theories as well as methods 425

Hamon-Hill, C. & Gadbois, S. From the bottom up: The roots of social neuroscience at risk of running dry? 426

Krach, S., Müller-Pinzler, L., Westermann, S. & Paulus, F. M. Advancing the neuroscience of social emotions with social immersion 427

Lewis, C. & Stack, J. A mature second-person neuroscience needs a first-person (plural) developmental foundation 428

Ltongo, M. R. & Tsakiris, M. Merging second-person and first-person neuroscience 429

Moore, C. & Paulus, M. A second-person approach cannot explain intentionality in social understanding 430

Moore, K. Second-person neuroscience: Implications for Wittgensteinian and Vygotskyan approaches to psychology 431

Moore, L. & Iacoboni, M. The use of non-interactive scenarios in social neuroscience 432

Nephew, B. C. What we can learn from second animal neuroscience 433

Overgaard, S. & Krueger, J. Social perception and "Spectator Theories" of other minds 434

Redcay, E., Rice, K. & Saxe, R. Interaction versus observation: A finer look at this distinction and its importance to autism 435

Rietveld, E., de Haan, S. & Denys, D. Social affordances in context: What is it that we are bodily responsive to? 436

Sameen, N., Thompson, J. & Carpendale, J. I. M. Further steps toward a second-person neuroscience 437

Simpson, E. A. & Ferrari, P. F. Mirror neurons are central for a second-person neuroscience: Insights from developmental studies 438

Swain, J. E., Konrath, S., Dayton, C. J., Finegood, E. D. & Ho, S. S. Toward a neuroscience of interactive parent–infant dyad empathy 438

Syal, S. & Anderson, A. K. It takes two to talk: A second-person neuroscience approach to language learning 439

Vermeulen, N., Pleyers, G. & Mermillod, M. Second-person social neuroscience: Connections to past and future theories, methods, and findings 440

Authors' Response:

Schilbach, L., Timmermans, B., Reddy, V., Costall, A., Bente, G., Schlicht, T. & Vogeley, K. A second-person neuroscience in interaction 441

Contents Volume 36:5 October 2013

Van de Vliert, E. Climato-economic habitats support patterns of human needs, stresses, and freedoms 465

Open Peer Commentary:

Adamopoulos, J. Interpersonal exchange and freedom for resource acquisition 480

Ainslie, G. Cold climates demand more intertemporal self-control than warm climates 481

Allik, J. & Realo, A. How is freedom distributed across the earth? 482

Arantes, J., Grace, R. C. & Kemp, S. Press freedom, oil exports, and risk for natural disasters: A challenge for climato-economic theory? 483

Baumeister, R. F., Park, J. & Ainsworth, S. E. Individual identity and freedom of choice in the context of environmental and economic conditions 484

Burghardt, G. M. Play, animals, resources: The need for a rich (and challenging) comparative environment 484

Chang, L., Chen, B.-B. & Lu, H. J. Cultural adaptation to environmental change versus stability 485

de Oliveira Chen, S. & Kitayama, S. Frontier migration fosters ethos of independence: Deconstructing the climato-economic theory of human culture 486

Desseilles, M., Duclos, C., Flohimont, V. & Desseilles, F. Is there a role for "climatotherapy" in the sustainable development of mental health? 487

Fischer, R. Improving climato-economic theorizing at the individual level 488

Gelfand, M. J. & Lun, J. Ecological priming: Convergent evidence for the link between ecology and psychological processes 489

Güss, C. D. What about politics and culture? 490

Hrotic, S. Unsurprising, in a good way 491

Iyer, R., Motyl, M. & Graham, J. What is freedom – and does wealth cause it? 492

Karwowski, M. & Lebuda, I. Extending climato-economic theory: When, how, and why it explains differences in nations' creativity 493

Leung, K. & Cheng, G. H.-L. Methodological suggestions for climato-economic theory 494

Locke, J. L. & Flanagan, C. M. The need for psychological needs: A role for social capital 495

Loughnan, S., Bratanova, B. & Kuppens, P. Toward an integrated, causal, and psychological model of climato-economics 496

Murray, D. R. Cultural adaptations to the differential threats posed by hot versus cold climates 497

Pahlavan, P. & Amirrezvani, A. Contextual freedom: Absoluteness versus relativity of freedom 498

Paternotte, C. Shared adaptiveness is not group adaptation 499

Sparks, A., Mishra, S. & Barclay, P. Fundamental freedoms and the psychology of threat, bargaining, and inequality 500

Terracciano, A. & Chan, W. Personality traits, national character stereotypes, and climate–economic conditions 501

Vigil, J. M., Swartz, T. J. & Rowell, L. N. Subtle variation in ambient room temperature influences the expression of social cognition 502

Author's Response:

Van de Vliert, E. White, gray, and black domains of cultural adaptations to climato-economic conditions 503

Jeffery, K. J., Jovalekic, A., Verriotis, M. & Hayman, R. Navigating in a three-dimensional world 523

Open Peer Commentary:

Badets, A. Semantic sides of three-dimensional space representation 543

Barnett-Cowan, M. & Bülthoff, H. H. Human path navigation in a three-dimensional world 544

Berthoz, A. & Thibault, G. Learning landmarks and routes in multi-floored buildings 545

Bianchi, I. & Bertamini, M. Anisotropy and polarization of space: Evidence from naïve optics and phenomenological psychophysics 545

Burt de Perera, T., Holbrook, R., Davis, V., Kacelnik, A. & Guilford, T. Navigating in a volumetric world: Metric encoding in the vertical axis of space 546

Carbon, C.-C. & Hesslinger, V. M. Navigating through a volumetric world does not imply needing a full three-dimensional representation 547
Dudchenko, P. A., Wood, E. R. & Grieves, R. M. Think local, act global: How do fragmented representations of space allow seamless navigation? 548
Durgin, F. H. & Li, Z. Perceptual experience as a bridge between the retina and a bicoded cognitive map 549
Dyer, A. G. & Rosa, M. G. P. Learning to navigate in a three-dimensional world: From bees to primates 550
Holmes, K. J. & Wolff, P. Spatial language as a window on representations of three-dimensional space 550
Hölscher, C., Büchner, S. & Strube, G. Multi-floor buildings and human wayfinding cognition 551
Howard, A. M. & Fragaszy, D. M. Applying the bicoded spatial model to nonhuman primates in an arboreal multilayer environment 552
Kaplan, D. M. The complex interplay between three-dimensional egocentric and allocentric spatial representation 553
Klatzky, R. L. & Giudice, N. A. The planar mosaic fails to account for spatially directed action 554
Lehky, S. R., Sereno, A. B. & Sereno, M. E. Monkeys in space: Primate neural data suggest volumetric representations 555
Longstaffe, K. A., Hood, B. M. & Gilchrist, I. D. Development of human spatial cognition in a three-dimensional world 556
Moss, C. F. Has a fully three-dimensional space map never evolved in any species? A comparative imperative for studies of spatial cognition 557
Nardi, D. & Bingman, V. P. Making a stronger case for comparative research to investigate the behavioral and neurological bases of three-dimensional navigation 557
Orban, G. A. Which animal model for understanding human navigation in a three-dimensional world? 558
Pasqualotto, A. & Proulx, M. J. The study of blindness and technology can reveal the mechanisms of three-dimensional navigation 559
Peremans, H. & Vanderelst, D. Augmented topological maps for three-dimensional navigation 560
Phillips, J. G. & Ogeil, R. P. Navigation bicoded as functions of x-*y* and time? 561
Powers, D. M. W. Vertical and veridical – 2.5-dimensional visual and vestibular navigation 562
Ross, H. E. Foreshortening affects both uphill and downhill slope perception at far distances 563
Savelli, F. & Knierim, J. J. The problem of conflicting reference frames when investigating three-dimensional space in surface-dwelling animals 564
Schultheis, H. & Barkowsky, T. Just the tip of the iceberg: The bicoded map is but one instantiation of scalable spatial representation structures 565
Sparks, F. T., O'Reilly, K. C. & Kubie, J. L. What is optimized in an optimal path? 566
Stella, F., Si, B., Kropff, E. & Treves, A. Grid maps for spaceflight, anyone? They are for free! 566
Wang, R. F. & Street, W. N. What counts as the evidence for three-dimensional and four-dimensional spatial representations? 567
Weisberg, S. M. & Newcombe, N. S. Are all types of vertical information created equal? 568
Yamahachi, H., Moser, M.-B. & Moser, E. I. Map fragmentation in two- and three-dimensional environments 569
Zappettini, S. & Allen, C. Does evidence from ethology support bicoded cognitive maps? 570

Authors' Response:
Jeffery, K. J., Jovalekic, A., Verriotis, M. & Hayman, R. A framework for three-dimensional navigation research 571

Contents Volume 36:6 December 2013

Llewellyn, S. Such stuff as dreams are made on? Elaborative encoding, the ancient art of memory, and the hippocampus 589

Open Peer Commentary:

Axmacher, N. & Fell, J. The analogy between dreams and the ancient art of memory is tempting but superficial 607

Bimler, D. L. Some Renaissance, Baroque, and contemporary cultural elaborations of the art of memory 608

Blagrove, M., Ruby, P. & Eichenlaub, J.-B. Dreams are made of memories, but maybe not for memory 609

Cheng, S. & Werning, M. Composition and replay of mnemonic sequences: The contributions of REM and slow-wave sleep to episodic memory 610

Cicogna, P. & Occhionero, M. Such stuff as NREM dreams are made on? 611

D'Agostino, A. & Scarone, S. Such stuff as psychoses are made on? 612

Deliens, G., Schwartz, S. & Peigneux, P. Don't count your chickens before they're hatched: Elaborative encoding in REM dreaming in face of the physiology of sleep stages 613

Desseilles, M. & Duclos, C. Dream and emotion regulation: Insight from the ancient art of memory 614

DeYoung, C. G. & Grazioplene, R. G. "They who dream by day": Parallels between Openness to Experience and dreaming 615

Dominey, P. F. A hippocampal indexing model of memory retrieval based on state trajectory reconstruction 615

Dresler, M. & Konrad, B. N. Mnemonic expertise during wakefulness and sleep 616

Erdelyi, M. H. Beware of being captured by an analogy: Dreams are like many things 617

Girard, T. A. The seahorse, the almond, and the night-mare: Elaborative encoding during sleep-paralysis hallucinations? 618

Globus, G. Ontological significance of the dream world 619

Greenberg, R. A three-legged stool needs a stronger third leg 620

Hobson, A. The ancient art of memory 621

Kirov, R. REM sleep and dreaming functions beyond reductionism 621

Markowitsch, H. J. & Staniloiu, A. The spaces left over between REM sleep, dreaming, hippocampal formation, and episodic autobiographical memory 622

Mattei, T. A. The secret is at the crossways: Hodotopic organization and nonlinear dynamics of brain neural networks 623

Nielsen, T. The method of loci (MoL) and memory consolidation: Dreaming is not MoL-like 624

Pearlmutter, B. A. & Houghton, C. J. Dreams, mnemonics, and tuning for criticality 625

Porte, H. S. From Freud to acetylcholine: Does the AAOM suffice to construct a dream? 626

Schredl, M. Studying the relationship between dreaming and sleep-dependent memory processes: Methodological challenges 628

Solms, M. Dreaming is not controlled by hippocampal mechanisms 629

Spoormaker, V. I., Czisch, M. & Holsboer, F. REM sleep, hippocampus, and memory processing: Insights from functional neuroimaging studies 629

van Heugten-van der Kloet, D., Merckelbach, H. & Lynn, S. J. Dissociative symptoms and REM sleep 630

Westermann, S., Paulus, F. M., Müller-Pinzler, L. & Krach, S. Elaborative encoding during REM dreaming as prospective emotion regulation 631

Windt, J. M. Minding the dream self: Perspectives from the analysis of self-experience in dreams 633

Author's Response:

Llewellyn, S. Such stuff as REM and NREM dreams are made on? An elaboration 634

Kurzban, R., Duckworth, A., Kable, J. W. & Myers, J. An opportunity cost model of subjective effort and task performance 661

Open Peer Commentary

Ainslie, G. Monotonous tasks require self-control because they interfere with endogenous reward 679

Bonato, M., Zorzi, M. & Umiltà, C. Difficulty matters: Unspecific attentional demands as a major determinant of performance highlighted by clinical studies 680

Bruyneel, S. D. & Dewitte, S. An addition to Kurzban et al.'s model: Thoroughness of cost-benefit analyses depends on the executive tasks at hand 681

Brzezicka, A., Kamiński, J. & Wróbel, A. Local resource depletion hypothesis as a mechanism for action selection in the brain 682

Carter, E. C. & McCullough, M. E. Is ego depletion too incredible? Evidence for the overestimation of the depletion effect 683

Charney, E. Can tasks be inherently boring? 684

Cohen, D. B. & Saling, L. L. Maximising utility does not promote survival 685

Craig, A. D. An interoceptive neuroanatomical perspective on feelings, energy, and effort 685

Gendolla, G. H. E. & Richter, M. Opportunity cost calculations only determine *justified* effort – Or, What happened to the resource conservation principle? 686

Hagger, M. S. The opportunity cost model: Automaticity, individual differences, and self-control resources 687

Harrison, J. M. D. & McKay, R. Give me strength or give me a reason: Self-control, religion, and the currency of reputation 688

Harvey, N. Depletable resources: Necessary, in need of fair treatment, and multi-functional 689

Hennecke, M. & Freund, A. M. Competing goals draw attention to effort, which then enters cost-benefit computations as input 690

Hillman, K. L. & Bilkey, D. K. Persisting through subjective effort: A key role for the anterior cingulate cortex? 691

Hofmann, W. & Kotabe, H. On treating effort as a dynamically varying cost input 692

Holroyd, C. B. Theories of anterior cingulate cortex function: Opportunity cost 693

Huizenga, H. M., van der Molen, M. W., Bexkens, A. & van den Wildenberg, W. P. M. Formal models of "resource depletion" 694

Inzlicht, M. & Schmeichel, B. J. Beyond simple utility in predicting self-control fatigue: A proximate alternative to the opportunity cost model 695

Iran-Nejad, A. & Zengaro, S. A. Opportunity prioritization, biofunctional simultaneity, and psychological mutual exclusion 696

Kool, W. & Botvinick, M. The intrinsic cost of cognitive control 697

Malecek, N. J. & Poldrack, R. A. Beyond dopamine: The noradrenergic system and mental effort 698

Molden, D. C. An expanded perspective on the role of effort phenomenology in motivation and performance 699

Monterosso, J. & Luo, S. Willpower is not synonymous with "executive function" 700

Navon, D. Effort aversiveness may be functional, but does it reflect opportunity cost? 701

Nicolle, A. & Riggs, K. The costs of giving up: Action versus inaction asymmetries in regret 702

Prudkov, P. N. Mental effort and fatigue as consequences of monotony 702

Tops, M., Boksem, M. A. S. & Koole, S. L. Subjective effort derives from a neurological monitor of performance costs and physiological resources 703

Westbrook, J. A. & Braver, T. S. The economics of cognitive effort 704

Wright, R. A. & Pantaleo, G. Effort processes in achieving performance outcomes: Interrelations among and roles of core constructs 705

Zayas, V., Günaydin, G. & Pandey, G. Persistence: What does research on self-regulation and delay of gratification have to say? 706

Authors' Response:

Kurzban, R., Duckworth, A., Kable, J. W. & Myers, J. Cost-benefit models as the next, best option for understanding subjective effort 707

BBS Associateship 2013 727